Claims

1. A transducer for reading magnetic transitions from a moving magnetic material comprising:an air bearing surface oriented in a first plane;

a magnetic sensor;

a magnetic shield disposed along a second plane, the second plane being orthogonal to the first plane, the magnetic shield having an area in the second plane;

an electrically conductive shield formed in a third plane which is parallel to the second plane, the electrically conductive shield being electrically isolated from the first magnetic shield, the third plane being disposed so that the magnetic shield is disposed between the electrically conductive shield and the magnetic sensor; and

a first contact pad of conductive material in electrical contact with the electrically conductive shield.

2. The transducer of claim 1 wherein the first contact pad is disposed with a planar surface parallel to the third plane, the first contact pad overlapping the electrically conductive shield, the transducer further comprising a via electrically connecting the electrically conductive shield to the first contact pad in an overlapping area.

3. The transducer of claim 1 further comprising a second contact pad of conductive material electrically insulated from the electrically conductive shield and in electrical contact with the magnetic sensor; and wherein the second contact pad is disposed with a planar surface parallel to the third plane, the electrically conductive shield extending to cover the first magnetic shield, the first contact pad and the second contact pad.

4. The transducer of claim 3 further comprising a write head and third and fourth contact pads in electrical contact with the write head; wherein the third and fourth

contact pads are disposed with at least one planar surface parallel to the third plane and are offset from the first and second contact pads, and third and fourth contact pads are disposed beyond an outer extent of the electrically conductive shield.

5. The transducer of claim 4 further comprising a fifth contact pad in electrical contact with magnetic sensor and electrically isolated from the electrically conductive shield and wherein the electrically conductive shield extends to cover the fifth contact pad.

6. The transducer of claim 4 wherein the electrically conductive shield extends to the air bearing surface and comprises a noncorrosive material.

7. The transducer of claim 4 wherein the electrically conductive shield is copper or a copper alloy.

8. A transducer for reading magnetic transitions from a moving magnetic material comprising a plurality of layers disposed generally in parallel planes, the layers along a first cylindrical core orthogonal to the parallel planes comprising:

a substrate;

a first undercoat layer of electrically insulating material;

an electrically conductive shield which is electrically connected to a first lead pad;

a second undercoat layer of electrically insulating material; and

a magnetic shield, the electrically conductive shield being electrically insulated from the magnetic shield and overlapping the magnetic shield in an area orthogonal to the air bearing surface.

9. The transducer of claim 8 further comprising a write head and wherein the layers along a second core orthogonal to the parallel planes comprise:

the substrate;

the first undercoat layer followed by the second undercoat layer, the first and second undercoat layers being contiguous; and

a second lead pad electrically connected to the write head;

whereby the electrically conductive shield does not extend to overlap the second lead pad in the second core sample.

10. The transducer of claim 9 wherein the layers along a third core orthogonal to the parallel planes comprise:

the substrate;

the first undercoat layer;

the electrically conductive shield;

the second undercoat layer; and

a third lead pad electrically connected to a magnetic sensor.

11. The transducer of claim 10 wherein the electrically conductive shield is composed of copper or a copper alloy, and the first and second undercoat layers are alumina.

12. A disk drive comprising:

a disk having a thin film of ferromagnetic material on a planar surface of the disk;

a spindle rotatably supporting the disk;

an arm with a suspension supporting a magnetic transducer having an air bearing surface over the planar surface of the disk, the arm including a differential amplifier; and

the magnetic transducer including:

a read head, first and second lead pads connected to the read head, a write head, third and fourth lead pads connected to the write head, and a magnetic shield; and

an electrically conductive shield layer in electrical contact with a fifth lead pad, the fifth lead pad being connected through the arm to a ground and being electrically isolated from the first, second, third and fourth lead pads, the first and second lead pads for the read head being electrically connected to the differential amplifier;

the electrically conductive shield layer extending along a first plane orthogonal to the air bearing surface, the first, second, third and fourth lead pads and the magnetic shield being disposed in a volume bounded by second and third planes which are perpendicular to a plane of the air bearing surface, the first plane being outside of the volume bounded by second and third planes, the electrically conductive shield having an extent which intersects perpendicular lines from planar surfaces of the magnetic shield and the first and second lead pads for the read head, and does not intersect perpendicular lines from planar surfaces of the third and fourth lead pads for the write head.

13. The disk drive of claim 12 wherein the ground is a signal ground or a case ground.

14. A method of making a transducer comprising the steps of:

depositing a layer of conductive material for an electrically conducting shield having a first extent;

depositing a layer of electrically insulating material over the electrically conducting shield;

forming a via at a first location in the layer of electrically insulating material;

forming a magnetic shield of ferromagnetic material within the first extent and not over the first location of the via;

depositing electrically conductive material in the via and to form a first lead pad in electrical contact with the electrically conducting shield; and

depositing electrically conductive material to form second and third lead pads connected to a write head, the second and third lead pads being formed outside of the first extent.

15. The method of claim 14 wherein the electrically insulating material is alumina and the electrically conductive material is copper or a copper alloy.

16. A transducer fabricated by a method comprising the steps of:

depositing a layer of conductive material for an electrically conducting shield having a first extent;

depositing a layer of electrically insulating material over the electrically conducting shield;

forming a via at a first location in the layer of electrically insulating material;

forming a magnetic shield of ferromagnetic material within the first extent and not over the first location of the via;

depositing electrically conductive material in the via and to form a first lead pad in electrical contact with the electrically conducting shield; and

depositing electrically conductive material to form second and third lead pads connected to a write head, the second and third lead pads being formed outside of the first extent.

17. The transducer of claim 16 wherein the electrically insulating material is alumina and the electrically conductive material is copper or a copper alloy.